NAVY TRAINING SYSTEM PLAN

FOR THE

AN/AES-1

AIRBORNE LASER MINE DETECTION SYSTEM

N75-NTSP-P-30-0304/I

SEPTEMBER 2003

AN/AES-1 AIRBORNE LASER MINE DETECTION SYSTEM

EXECUTIVE SUMMARY

This Initial Navy Training System Plan (NTSP) for the Airborne Laser Mine Detection System (ALMDS) AN/AES-1 hereafter referred to as ALMDS was developed using the Training Planning Process Methodology. This document provides an early estimate of manpower, personnel, and training requirements to support the employment concepts currently being considered. It also contains appropriate data required to make accurate decisions and assessments concerning manpower and training alternatives for the ALMDS.

The ALMDS is a non-acoustic Airborne Mine Countermeasures (AMCM) high area coverage system that detects, classifies, and localizes floating, drifting, and near surface moored sea mines. The system will be employed from the MH-60S Multi Mission Helicopter and will provide an Organic Airborne Mine Countermeasures capability to the Carrier Battle Group and Amphibious Ready Group and provide an improved minehunting capability to the dedicated AMCM Forces. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Operating Area. The system represents a significant improvement over the Magic Lantern (Deployment Contingency) capability in the current Mine Countermeasures inventory. The ALMDS is currently in the System Development and Demonstration phase of the Defense Acquisition System. The Acquisition Category (ACAT) assigned is ACAT II. The Milestone C Decision Point is planned for first quarter Fiscal Year (FY) 04. Initial Operational Capability is currently scheduled for first quarter FY06.

The ALMDS is the first pulsed-illumination laser minehunting system to be deployed for Navy use and represents the state of the art of Light Detection and Ranging (LIDAR) technology. The unique Streak Tube Imaging LIDAR receiver concept produces 3D images of the water volume. The computer-aided detection/classification algorithm parses the returned LIDAR to create a target database.

The maintenance concept for the ALMDS will be based on two of the three levels of maintenance, Organizational (O-Level), and Depot (D-Level) as stated in the Naval Aviation Maintenance Program, Chief of Naval Operations Instruction 4790.2H. It is expected that Aviation Electronics Technicians (AT), Navy Enlisted Classification (NEC) code 83XX, assigned to Helicopter Combat Support (HC) and Helicopter Mine Countermeasures (HM) squadrons, as MH-60S AMCM Systems Maintenance Technicians Organizational and Intermediate Level will perform O-Level maintenance on the ALMDS. These billets do not currently exist in the HC squadrons and will have to be established. AT O-Level and I-Level MH-53E AMCM systems maintenance billets currently exist in the HM squadrons, it is expected that these will convert to MH-60S AMCM systems maintenance billets to support the HM community's transition to the MH-60S. A new NEC code 83XX will be required to identify MH-60S AMCM systems maintenance personnel. Aviation Ordnanceman (AO) NEC code 8378 that will be assigned to the HC squadrons will perform aircraft mission configuration and

mission certification. AO maintenance billets do not currently exist in the HC deployable squadrons and will have to be established. AOs NEC code 8378 that will be assigned to the HM squadrons Aircraft Maintenance Department Work Center (W/C) 230 will perform aircraft mission configuration, and certification. It is expected that the manufacturer will perform D-Level maintenance.

Operations Specialists (OS) that are assigned to the HM squadrons conduct AMCM Mine Countermeasures (MCM) Planning, Post Mission Analysis and operate AMCM Command, Control, Communications, Computers, and Intelligence (C4I) systems. It is expected that this manning concept will not change. Currently these OSs receive no AMCM specific follow-on training or NEC. This NTSP outlines a planned Stand-Alone course that will support the OS training requirements. Additionally, an On The Job Training awardable NEC code, which will identify their AMCM specific qualifications, is planned. Personnel requirements for conducting MCM Planning, Post Mission Analysis, MCM Evaluation, and the operation of AMCM C4I systems for the HC squadrons are currently being evaluated.

The ALMDS mission will require an operator manning of four: pilot, co-pilot, and two enlisted aircrewmen. It is expected that the ALMDS will not require additional operator billets above those identified in current HC and HM Activity Manpower Documents. It is anticipated additional O-Level and I-Level maintenance billets within the HC squadrons will be required to support the ALMDS and additional MH-60S Airborne Mine Countermeasures Systems. Additional instructor billets may be required to support ALMDS follow-on training requirements. A Manpower Estimate Report (MER) is currently under development by Commander Naval Air Systems Command (Code AIR 3.2.6) Patuxent River, Maryland. Results of the MER will be identified in future updates of this NTSP.

Follow-on maintenance training for mission configuration personnel will be conducted at Maintenance Training Unit (MTU) –1044 Naval Station (NS) Norfolk, Virginia and MTU-1022, Naval Air Station (NAS) North Island, California. Follow-on ALMDS maintenance training for the AMCM systems technicians will be conducted at MTU-1044, NS Norfolk and MTU-1022, NAS North Island**.** It is anticipated operator training will be conducted at the Fleet Replacement Squadrons located at HC-3 NAS North Island and HC-2 NS Norfolk. Follow-on training for squadron tactics (MCM Planning/Post Mission Analysis/MCM Evaluation) personnel is under review and will be included in future updates to this NTSP.

The ALMDS is one of five AMCM sensor/weapon systems being developed for deployment aboard the MH-60S aircraft. The additional sensor/weapon systems are the AN/AQS-20A Sonar Mine Detecting Set, Rapid Airborne Mine Countermeasures System (RAMICS), Organic Airborne and Surface Influence System (OASIS), and the Airborne Mine Neutralization System (AMNS). Individual NTSPs are in development for each of these systems.

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LIST OF ACRONYMS

ACAT	Acquisition Category
AE	Aviation Electrician's Mate
ALMDS	Airborne Laser Mine Detection System
AMCM	Airborne Mine Countermeasures
AMTCS	Aviation Maintenance Training Continuum System
AO	Aviation Ordnanceman
APO	Aviation Petty Officer
AT	Aviation Electronics Technician
BIT	Built-In-Test
C4I	Command, Control, Communications, Computers, and Intelligence
CBT	Computer Based Training
CC	Common Console
CNO	Chief of Naval Operations
COMOPTEVFOR	Commander Operational Test & Evaluation Force
CSTRS	Carriage, Stream, Tow, and Recovery System
D-Level	Depot Level
DT&E	Developmental Test and Evaluation
FRS	Fleet Replacement Squadron
GPS	Global Positioning System
HC	Helicopter Combat Support
HM	Helicopter Mine Countermeasures
ICW	Interactive Courseware
IETM	Interactive Electronic Technical Manual
I-Level	Intermediate Level
IOC	Initial Operational Capability
LIDAR	Light Detection and Ranging
LRIP	Low Rate Initial Production
MCM	Mine Countermeasures

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LIST OF ACRONYMS

MEDAL	Mine Warfare and Environmental Decision Aids Library
MER	Manpower Estimate Report
MPS	Mission Planning System
MTU	Maintenance Training Unit
NAMP	Naval Aviation Maintenance Program
NAMTRAU	Naval Air Maintenance Training Unit
NAS	Naval Air Station
NEC	Navy Enlisted Classification
NS	Naval Station
NSWCCSS	Naval Surface Warfare Center Coastal Systems Station
NTSP	Navy Training System Plan
OJT	On the Job Training
O-Level	Organizational Level
OPEVAL	Operational Evaluation
OPO	OPNAV Principal Official
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OS	Operations Specialist
PEO LMW	Program Executive Officer Littoral and Mine Warfare
PMA	Program Manager, Air
PMS	Program Manager, Surface
RFT	Ready For Training
SAMP	Single Acquisition Management Plan
STIL	Streak Tube Imaging LIDAR
TBD	To Be Determined
TD	Training Device
TECHEVAL	Technical Evaluation
TRPPM	Training Planning Process Methodology
TTE	Technical Training Equipment
W/C	Work Center
WRA	Weapons Replaceable Assembly

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PREFACE

This Initial Navy Training System Plan (NTSP) is an early look at the Airborne Laser Mine Detection System (ALMDS) program. This is the first iteration of the Initial NTSP for the ALMDS program. The data contained in this iteration does not represent the official Manpower Personnel and Training requirements of the program. This document explores the various employment and support alternatives currently under consideration. Since it is relatively early in the acquisition process, some definitive data was unavailable for inclusion in this version. This NTSP is a product of the Training Planning Process Methodology, as outlined in OPNAV publication P-751-3-9-97.

PART I - TECHNICAL PROGRAM DATA

A. TITLE-NOMENCLATURE-PROGRAM

1. Title-Nomenclature-Acronym. AN/AES-1, Airborne Laser Mine Detection System, (ALMDS).

2. Program Element. 0604373N.

B. SECURITY CLASSIFICATION

1. System Characteristics ..... Unclassified
2. Capabilities ..... Confidential
3. Functions ..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Sponsor ..... CNO (N752)

OPO Resource Sponsor..... CNO (N759)

Developing Agency ..... PEO LMW (PMS210)

Training Agency ..... COMLANTFLT
COMPACFLT
NETC

Training Support Agency..... NAVAIR (PMA205)

Manpower and Personnel Mission Sponsor..... CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training .....CNO (N00T)

D. SYSTEM DESCRIPTION

1. Operational Uses. The ALMDS is a helicopter deployed electro-optic system that provides a rapid means of detection, classification and localization of floating, drifting, and near-surface moored sea mines in littoral zones. It can be deployed from land-based and shipborne helicopters, and has the capability of deployment from any ship capable of supporting the host aircraft, MH-60S. This system utilizes the Streak Tube Imaging Light Detection and Ranging (LIDAR) (STIL) receiver concept to produce 3D images of the water volume.

ALMDS will support Mine Countermeasures (MCM) operations by rapidly locating mine-like objects for prosecution, while offering a much greater area search in a given period of time than other types of Airborne Mine Countermeasures (AMCM) equipment.

2. Foreign Military Sales. No Foreign Military Sales are planned at this time.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. Developmental Test and Evaluation (DT&E) will be conducted as outlined in the ALMDS Test and Evaluation Master Plan Number 1583 and will be accomplished as follows:

DT-0, conducted in 1990-1991, demonstrated the LIDAR mine reconnaissance concept.

DT-I successfully demonstrated Advanced Development Model system performance. Naval Air Warfare Center, Aircraft Division, Patuxent River, Maryland and Naval Surface Warfare Center, Dahlgren Division, Coastal Systems Station (NSWCCSS), Panama City, Florida conducted DT-I in September 1994, with support from the manufacturer.

DT-IIA Phase 1 testing will address flying qualities from the SH-60B/F to support DT II-B. DT-IIA Phase 2 testing will address flying qualities and jettison from the Carriage, Stream, Tow, and Recovery System (CSTRS) on the MH-60S to support DT-IIC and later testing. DT-IIB testing and Operational Summary will be conducted on the SH-60F aircraft. Control and display of the ALMDS pod from the aircraft during DT-IIB will be accomplished using the ALMDS prime contractor Airborne Test Set. Ground station support for MCM planning and evaluation will be accomplished using either Mine Warfare and Environmental Decision Aids Library (MEDAL) or using the ALMDS prime contractor Ground Test Set, depending on the availability of MEDAL with ALMDS capability. DT-IIC testing will be conducted on the MH-60S. Control and display of the ALMDS pod from the aircraft during DT-IIC will be accomplished using the MH-60S Common Console (CC). Ground station support from mission planning and Post Mission Analysis will be accomplished using MEDAL. Operational Evaluation (OPEVAL) will be conducted on the MH-60S using the CC for control and display of the ALMDS pod from within the aircraft. OPEVAL will be used to support a Production decision and to verify the operational effectiveness and operational suitability of a production-representative Engineering Development Model.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. The ALMDS will not replace or augment any existing equipment or system.

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. The ALMDS is a helicopter-deployed system capable of detecting and classifying floating and moored mines and mine-like objects. The ALMDS will be employed in controlled airspace by tactical elements of the U.S. Navy during various mission scenarios. ALMDS hardware and software will be integrated into the MH-60S. MH-60S integration is accomplished through use of the AMCM mission kit, which consists of a pallet-based store pylon extending from the port cargo door and a CC for controlling the hardware and software in the ALMDS pod and displaying the ALMDS data. The ALMDS will be compatible with the MH-60S datalink to transfer processed mission data (position, location, etc.) in near real time.

ALMDS hardware includes a pod and unique ALMDS hardware on the MH-60S CSTRS. ALMDS software consists of that resident in the ALMDS pod. It will interface with the MH-60S helicopter and CC. ALMDS and aircraft data will be recorded in a mass memory unit in the CC. The ALMDS will use the MH-60S datalink to transfer processed contact and mission data. The ALMDS will receive Global Positioning System (GPS) navigation, and aircraft attitude information, such as pitch, roll, yaw, and other required navigation parameters, from the aircraft data bus to accurately determine the location of the mines. The aircraft CC will accept the preprogrammed ALMDS mission data from the Mission Planning System (MPS). The ALMDS pod sensor is subdivided into eight major components:

a. Transmitter Assembly - Contains components for generating and transmitting laser fan beam.

b. Receiver Assemblies (4) - Contains components for receiving laser returns and converting them to electronic pixels.

c. Central Electronics Chassis - Contains components for real time processing of electronic pixels from laser returns.

d. Hardware Control Unit - Main command and control interface to, from, and within the Pod and low level Input/Output interface with the pod hardware.

e. Environmental Control System - Vapor cycle system for controlling internal pod temperature.

f. Pod Pressurization System - System for dehumidifying/filtering intake air and compressing air for maintaining positive ambient air pressure within pod.

g. Power Distribution Unit - Distributes electrical power to pod elements.

h. Pod Housing - Contains components for physically supporting and housing other pod elements. Refer to Figure I-1 for system/aircraft layout.

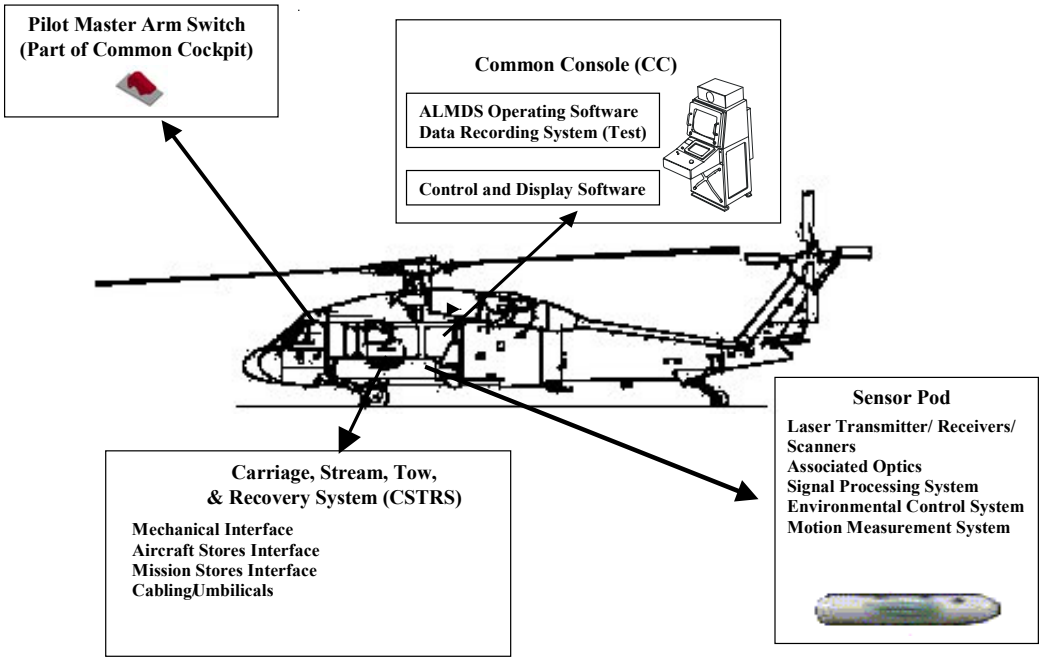

Figure I-1

2. Physical Description. The table below identifies the physical dimensions of the ALMDS.

PHYSICAL DIMENSIONS OF THE ALMDS			
COMPONENT	**LENGTH**	**DIAMETER**	**WEIGHT**
ALMDS Pod	100 in.	19.1 in.	850 lbs.

3. New Development Introduction. The ALMDS will be introduced as new production.

4. Significant Interfaces. The ALMDS will interface with the host aircraft to obtain power, for mechanical attachment of components, to provide safety controls, to obtain attitude and heading information, and to obtain GPS coordinates. The ALMDS will integrate, interface, and interact with shipboard combat systems elements. Information will transfer from the aircraft to the ship via near real-time data link. Refer to the Assigned Airborne Mine Countermeasures Concept of Employment dated 30 November 2001 for additional information.

5. New Features, Configurations, or Material. The ALMDS is the first pulsed-illumination laser minehunting system to be deployed for Navy use and represents the state-of-the-art of LIDAR technology. The unique STIL receiver concept produces 3D images of the water volume. The computer-aided detection/classification algorithm parses the returned LIDAR to create a target database.

H. CONCEPTS

1. Operational Concept. The ALMDS will be a non-acoustic AMCM high area coverage system that detects, classifies, and localizes floating, drifting, and near surface moored sea mines. The system will be employed from the MH-60S helicopter and will provide an Organic Airborne Mine Countermeasures capability to the Carrier Battle Group and Amphibious Ready Group and will provide an improved minehunting capability to the dedicated AMCM Forces. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area. The system represents a capability that does not exist in the current MCM inventory. The normal operating crew consists of a MH-60S AMCM Pilot, Co-pilot, and two enlisted aircrewmen. As with all AMCM systems, the ALMDS is modular in design, it can be readily installed in, and removed from, the helicopter as AMCM mission requirements dictate. MCM Planning, Post Mission Analysis, and MCM Evaluation will be performed utilizing the MH-60 MPS, MEDAL, and the Post Mission Analysis Station.

2. Maintenance Concept. The maintenance concept for the ALMDS will be based on two of the three levels of maintenance as stated in the Naval Aviation Maintenance Program (NAMP), Office of the Chief of Naval Operations Instruction (OPNAVINST) 4790.2H as determined by the Level Of Repair Analysis. The levels of maintenance are: Organizational Level (O-Level) and Depot Level (D-Level).

a. Organizational. O-Level maintenance will be limited to cleaning and inspection, go/no-go testing using Built-In Test (BIT) capability, and isolation of system faults using BIT capability. Daily preventive maintenance shall require no more than one hour during any 24-hour period. ALMDS BIT shall provide for fault detection with a 98 percent probability (100 percent on operational mission failure faults). The BIT shall also provide for full isolation to a single Weapons Replaceable Assembly (WRA) with a 96 percent confidence level and to two WRAs with a 99 percent confidence level. The system is designed to minimize the frequency and complexity of maintenance at the O-Level.

It is expected that Aviation Electronics Technicians (AT) with a new Navy Enlisted Classification (NEC) code 83XX, MH-60S Airborne Mine Countermeasures Systems Maintenance Technicians Organizational and Intermediate Level will be assigned to Helicopter Combat Support (HC) and Helicopter Mine Countermeasures (HM) squadrons and will perform O-Level maintenance on the ALMDS. Additionally they will be trained to perform O-Level and Intermediate Level (I-Level) maintenance as required on all the MH-60S AMCM systems. These billets do not currently exist in the HC squadrons and will have to be established. Aviation Ordnanceman (AO) NEC code 8378 will perform aircraft mission configuration and certification. AO maintenance billets do not currently exist in the HC squadrons and will have to

be established. Additionally ATs NEC code 83XX, MH-60S AMCM Systems Maintenance Technicians Organizational and Intermediate Level will be assigned to W/C 230 to provide maintenance support for the ALMDS when installed and while in their custody. This maintenance concept is supported by the AMCM mission systems maintenance program outlined in the NAMP, OPNAVINST 4790.2H.

(1) Preventive Maintenance. Preventive maintenance at the organizational level normally occurs between missions and includes limited scheduled maintenance consisting of pre/post-flight inspections, operational readiness testing, and corrosion control. The contractor will perform a Maintenance Task Analysis defining O-Level tasks and repair times.

(2) Corrective Maintenance. Corrective maintenance will be limited to fault isolation as identified by the systems BIT capability interactive diagnostics and external test methods.

b. Intermediate. Currently ALMDS I-Level maintenance is not required.

c. Depot. D-Level maintenance support for the ALMDS will involve repair and overhaul of sophisticated electronics and optics, requiring specialized facilities and specially trained personnel. The Depot will receive the complete pod assembly from the O-Level maintenance activity for repair as necessary.

d. Interim Maintenance. Interim maintenance will be provided by factory technical representatives until Navy personnel are fully trained to perform O-Level maintenance.

e. Life-Cycle Maintenance Plan. The Life–Cycle Maintenance Plan is currently not available. When completed it will be added to future updates of this document.

3. Manning Concept. Based on a cursory analysis of the operator, maintenance, and tactics related tasks associated with the ALMDS and its supporting equipment, it has been determined these tasks will be within the capabilities of the Navy's existing enlisted rating and Navy Officer Billet Classification structures. Based on current program information it is anticipated introduction of the ALMDS will require no additional operator billets above those identified in current HC and HM Activity Manpower Documents. Based on the results of a base line comparison conducted during the development of this NTSP utilizing current AMCM systems maintenance support information, it is expected that additional O-Level maintenance billets will be required within the HC squadron to support the maintenance requirements of the ALMDS. It is expected that existing AT NEC 8391 maintenance billets will convert to MH-60S AMCM systems maintenance support billets when the HM squadrons transition to the MH-60S and its associated AMCM systems. Additional instructor billets may be required to support ALMDS training requirements. This will not be determined until detailed training and student throughput information becomes available. Actual manpower requirements will not be available until a Manpower Estimate Report (MER) for the MH-60S squadrons supporting AMCM becomes available.

Note: A MER is currently under development by Commander Naval Air Systems Command (Code AIR 3.2.6) Patuxent River, Maryland. Results of the MER will be identified in future updates of this NTSP.

a. Estimated Maintenance Man-Hours per Operating Hour. Estimated Maintenance Man-Hours per Operating Hour for each effected work center will be identified from the development of the MER. Once complete, the results will be identified in an update to this NTSP. Preliminary reliability predictions as identified in the ALMDS Maintenance Support Plan indicate that the ALMDS Pod has a series Mean Time Between Failures of 128 operating hours.

b. Proposed Utilization. Average sortie length is expected to be approximately two hours and 30 minutes. The following are estimates from the ALMDS Concept of Employment.

(1) Peace Time Operational Tempo. One sortie per week per year for a total of 130 hours per year per ALMDS pod.

(2) Surge Capability (Exercises/Wartime). Fifty-six sorties over four weeks for a total of 140 hours per month per pod. Two ALMDS sorties per day with the same pod.

c. Recommended Qualitative and Quantitative Manpower Requirements. Based on the MH-60S NTSP N88-NTSP-A-50-9902A/A, current ALMDS program information, and baseline comparisons conducted it is expected the ALMDS will not require additional operator billets. New O-Level AO, NEC code 8378 and O-Level AT, NEC code 83XX maintenance billets may be required.

(1) Operator. Refer to the MH-60S NTSP N88-NTSP-A-50-9902A/A.

(2) Maintenance. It is expected that new maintenance billets will be required to support O-Level maintenance requirements for the ALMDS. These O-Level ATs will be assigned to the squadrons specifically trained to support both the O-Level and I-Level maintenance requirements for all the MH-60S AMCM systems. It is anticipated that they will be identified as MH-60S AMCM Systems Maintenance Technician Organizational and Intermediate Level, NEC code 83XX. Additionally, AOs NEC code 8378 will perform aircraft mission configuration and certification. AO maintenance billets currently do not exist in the deployable HC squadrons. These billets will have to be established. This maintenance-manning concept is supported by the NAMP, OPNAVINST 4790.2H and is similar to that of the HM community. Detailed maintenance manpower information is currently not available. The tables below detail current and proposed qualitative manning information.

Note: The O-Level AOs may be assigned to the CVBG MH-60s squadrons as a result of the Combat Search and Rescue (Armed Helo) requirement. Refer to the H-60 Armed Helicopter NTSP N88-NTSP-A-50-9805/A.

HM AMCM SYSTEMS MAINTENANCE SUPPORT					
CURRENT MH-53E			PROPOSED MH-60S		
RATE	**NEC**	**W/C**	**RATE**	**NEC**	**W/C**
AD	8391	16A	AO	8378	230
AE	8391	16B	AT	83XX	230/16B
AM	8391	230/16A	-	-	-
AO	0000	230	-	-	-
AT	8391	16B	-	-	-

HC AMCM SYSTEMS MAINTENANCE SUPPORT					
CURRENT H-46			PROPOSED MH-60S		
RATE	**NEC**	**W/C**	**RATE**	**NEC**	**W/C**
None	-	-	AO	8378	230
None	-	-	AT	83XX	210

Note: With the current and future development of MH-60S deployable AMCM systems, the need for a specific NEC code identifying those personnel trained and qualified to maintain these systems may be required. Currently the HM community utilizes NEC code 8391; AMCM Systems Maintenance Technician Organizational and Intermediate Level to identify personnel trained to maintain AMCM systems and mission equipment. These personnel support both O-Level and I-Level maintenance requirements.

(3) Tactics. Operations Specialists (OS) are assigned to conduct AMCM MCM Planning, Post Mission Analysis, MCM Evaluation, and operate AMCM Command, Control, Communications, Computers, and Intelligence (C4I) systems for the HM squadrons. It is expected that this manning concept will not change. Currently these OSs receive no AMCM specific follow-on training or NEC. This NTSP outlines a planned Stand-Alone course that will provide AMCM specific tactics training. Additionally, an On-the-Job Training (OJT) awardable NEC code (NEC 03XX) that will identify their AMCM specific qualifications is planned. This Stand-Alone course along with the OJT will ensure these personnel receive the training and skills necessary to meet the commands operational commitments. Personnel requirements for conducting MCM Planning, Post Mission Analysis, MCM Evaluation, and the operation of AMCM C4I systems for the HC squadrons are currently being evaluated. HC and HM operators (pilots and aircrewmen) will receive AMCM mission tactics training from a segment course within the operator track.

4. Training Concept. The ALMDS training program will consist of initial and follow-on training for Technical Evaluation (TECHEVAL) and OPEVAL personnel, instructors, Fleet operators, maintenance technicians, and tactics personnel. Initial training for TECHEVAL and OPEVAL personnel, instructors, Fleet operators, and maintenance technicians will be accomplished through contractor support. Follow-on training for operators (pilots and aircrewmen) will be conducted at the MH-60S Fleet Replacement Squadrons (FRS) HC-3 Naval Air Station (NAS) North Island, California and HC-2 Naval Station (NS) Norfolk, Virginia. Follow-on maintenance training for mission configuration personnel (AOs) will be conducted at Maintenance Training Unit (MTU) -1044, NS Norfolk and MTU-1022, NAS North Island. Follow-on ALMDS maintenance training for the AMCM systems technicians (ATs) will be conducted at MTU-1044, NS Norfolk and MTU-1022 NAS North Island. Training for HM tactics (Mission Planning/Post Mission Analysis) personnel will be provided through a Stand-Alone course at a location and activity To Be Determined (TBD). Tactics training and locations for HC squadron (Mission Planning/Post Mission Analysis) personnel is currently under review. The follow-on training system that will be delivered to the training activities will be developed under contract as Computer Based Training (CBT) in the format required by the training activities.

a. Initial Training. The Contractor will develop and conduct operator and maintenance initial training for Navy Test and Evaluation personnel in support of TECHEVAL and OPEVAL. In order to meet Fleet introduction requirements, the Contractor will also develop and conduct operator and maintenance initial training for the FRS and Naval Air Maintenance Training Unit (NAMTRAU) instructors, and an initial cadre of Fleet operator, maintenance, and tactics (MCM Planning/Post Mission Analysis/MCM Evaluation) personnel. Initial training will include Laser Safety Fundamentals as required. It is expected that the following courses will be required.

Note: Initial training requirements for tactics personnel are currently under review.

(1) Pre-TECHEVAL and OPEVAL.

Title	**ALMDS Pre-TECHEVAL and OPEVAL Training Courses**
Description	Provides familiarization training to selected personnel to sufficiently prepare for and support TECHEVAL and OPEVAL. This will include Laser Safety Fundamentals, controls and indications, aircraft rigging/de-rigging, certification procedures, aircrew operating procedures, safety/emergency procedures and system tactics.
Location	NSWCCSS Panama City
Length	TECHEVAL: 23 Days
	OPEVAL: 43 Days
RFT date	TECHEVAL: April 04
	OPEVAL: December 04
TTE/TD	ALMDS, CSTRS, CC, H-60
Prerequisite	Selected Government and Navy personnel in support of TECHEVAL and OPEVAL

(2) Operator. Instructors and initial cadre Fleet personnel.

Title	**Airborne Laser Mine Detection System Operation and Tactics Initial Training (Pilot)**
Description	Provides instructors and an initial cadre of Fleet pilots Laser safety fundamentals and the basic skills, tactics and techniques necessary to employ the ALMDS.
Location	TBD
Length	TBD
RFT date	March 05
TTE/TD	TBD
Prerequisites	Pilot qualified in the MH-60S helicopter

Title	**Airborne Laser Mine Detection System Operator Initial Training**
Description	Provides instructors and an initial cadre of Fleet aircrewmen Laser safety fundamentals and the basic skills necessary to operate the ALMDS.
Location	TBD
Length	TBD
RFT date	March 05
TTE/TD	TBD
Prerequisites	Aircrewman qualified in the MH-60S helicopter, APO NEC 8205

(3) Tactics. Instructors and initial cadre Fleet personnel.

Title.....	**ALMDS Tactics, MCM Planning, Post Mission Analysis, and MCM Evaluation Initial Training**
Description.....	Provides instructors and an initial cadre of Fleet tactics personnel the training necessary to properly plan mission requirements, conduct post mission analysis, and evaluate the mission for the ALMDS.
Location.....	TBD
Length.....	TBD
RFT date.....	March 05
TTE/TD.....	TBD
Prerequisites.....	Fleet AMCM Tactics personnel

(4) Maintenance. Instructors and initial cadre Fleet personnel.

Title.....	**Airborne Laser Mine Detection System Organizational Level Maintenance Initial Training**
Description.....	Provides instructors and an initial cadre of Fleet personnel the skills, knowledge, and techniques required to perform O-Level maintenance, laser safety fundamentals and test procedures on the ALMDS.
Location.....	TBD
Length.....	TBD
RFT date.....	March 05

TTE/TD.....	ALMDS System
Prerequisites.....	AT 83XX

Title.....	**ALMDS Aircraft Configuration Initial Training**
Description.....	Provides instructors and an initial cadre of Fleet maintenance personnel with the skills, knowledge, and techniques required to properly configure the aircraft, operate BIT Equipment for the ALMDS mission and laser safety fundamentals.
Location.....	TBD
Length.....	TBD
RFT date.....	March 05
TTE/TD.....	ALMDS, CC, CSTRS, MH-60S
Prerequisites.....	AO 8378, AT 83XX

b. Follow-on Training. Follow on training for operators (pilots and aircrewmen) will be conducted at the MH-60S FRS, HC-3 NAS North Island and HC-2 NS Norfolk. Follow-on training for maintenance personnel will be conducted at MTU-1044, NS Norfolk and MTU-1022, NAS North Island. Training for HM tactics (Mission Planning/Post Mission Analysis) personnel will be provided through a Stand-Alone course as identified in the AN/AQS-20A Initial NTSP at a location TBD. Tactics training and locations for HC squadron (Mission Planning/Post Mission Analysis) personnel is currently under review. The following are proposed courses:

(1) Operator.

Title	**Airborne Laser Mine Detection System Operator**
CIN	C-050-XXX1 (Pipeline E-050-3100, E-050-3102)
Model Manager ...	HC-3, NAS North Island, California
Description	This course provides MH-60S aircrewmen Laser Safety Fundamentals and the basic skills necessary to operate the ALMDS and perform contact recognition.
Location	HC-2, NS Norfolk, Virginia HC-3, NAS North Island, California
Length	TBD
RFT date	HC-2 – TBD HC-3 – June 05

Skill identifier	APO NEC 8205
TTE/TD	TBD
Prerequisites.....	Q-050-1500, Naval Aircrew Candidate School Q-050-0600, Aviation Rescue Swimmer School E-050-3101, MH-60S Category I MMH Aircrewman D/E-2D-0039, Survival, Evasion, Resistance, and Escape

(2) Maintenance.

Title.....	**ALMDS Electronic Systems Organizational Level Maintenance**
CIN.....	C-102-XXX2 (Pipeline D/E-102-XXX1)
Model Manager....	TBD
Description.....	Provides ATs with Laser Safety Fundamentals, and the skills, knowledge, and techniques required to perform aircraft configuration/de-configuration, and O-Level maintenance, and test procedures on the ALMDS.
Location.....	MTU-1022, NAS North Island, California MTU-1044, NS Norfolk, Virginia
Length.....	TBD
RFT date.....	MTU-1022 - June 05 MTU-1044 - TBD
Skill identifier.....	AT 83XX
TTE/TD.....	TBD
Prerequisites.....	C-100-2020, Avionics Common Core Class A1 C-100-2018, Aviation Electronics Technician O-Level Class A1 or C-100-2017, Aviation Electronics Technician I-Level Class A1

c. Student Profiles.

SKILL IDENTIFIER	PREREQUISITE SKILL AND KNOWLEDGE REQUIREMENTS
1311	Q-2A-0001, Primary Flight Training Q-2A-0010, Joint T-34C/T-6A Joint Primary Aircraft Training System (JPATS) Intermediate Flight Training Q-2A-0015, Undergraduate Helicopter Pilot Training D/E-2D-0039, Survival, Evasion, Resistance, and Escape Training J-495-0413, Shipboard Aircraft Firefighting.
AO 8378	C-646-2011, Aviation Ordnanceman Common Core Class A1 C-646-2012, Aviation Ordnanceman Airwing Strand Class A1
AT 83XX	C-100-2020, Avionics Common Core Class A1 C-100-2018, Aviation Electronics Technician O-Level Class A1, and or C-100-2017, Aviation Electronics Technician I Level Class A1
APO 8205	Q-050-1500, Naval Aircrewman Candidate School Q-050-0600, Aviation Rescue Swimmer School D/E-2D-0039, Survival, Evasion, Resistance, and Escape
OS 03XX	J-221-0011, Operations Specialist Class A1

d. Training Pipelines. The following identifies proposed track and course impacts as a result of the addition of ALMDS operator, maintenance, and tactics training. Due to this being new development training, the extent of impact to existing and planned training tracks is unknown at this time. Two new NEC codes are proposed, AT 83XX, MH-60S AMCM Systems Maintenance Technician Organizational and Intermediate Level and OS 03XX, AMCM Operations Specialist. Details of the individual training tracks, courses, and revisions to the existing training tracks are listed in Appendix B.

(1) E-2C-3100, MH-60S Fleet Replacement Pilot Category I Pipeline

(2) E-2C-3102, MH-60S Fleet Replacement Pilot Category II Pipeline

(3) E-050-3100, MH-60S Fleet Replacement Aircrew Category I Pipeline

(4) E-050-3102, Fleet Replacement Aircrewman Category II Pipeline

(5) D/E-102-XXX1, MH-60S AMCM Systems Organizational and Intermediate Maintenance. Proposed in the AN/AQS-20A Initial NTSP.

(6) D/E-646-0840, H-60 Armament and Related Systems Organizational Maintenance

(7) C-102-XXX3, Airborne Mine Countermeasures MCM Planning, Post Mission Analysis, MCM Evaluation Course. Proposed in the AN/AQS-20A Initial NTSP.

I. ONBOARD (IN-SERVICE) TRAINING.

1. Proficiency or Other Training Organic to the New Development.

a. Maintenance Training Improvement Program. Current planning is to adopt the Aviation Maintenance Training Continuum System (AMTCS) concepts to replace the Maintenance Training Improvement Program (MTIP). AMTCS is scheduled to begin full implementation for fleet deployment in November 2003.

b. Aviation Maintenance Training Continuum System. The AMTCS will provide career path training to the Sailor or Marine from their initial service entry to the end of their military career. AMTCS concepts will provide an integrated system that will satisfy the training and administrative requirements of both the individual and the organization. The benefits will be manifested in the increased effectiveness of the technicians and the increased efficiencies of the management of the training business process. Where appropriate, capitalizing on technological advances and integrating systems and processes can provide the right amount of training at the right time, thus meeting the CNO's mandated "just-in-time" training approach.

Technology investments enable the development of several state-of-the-art training and administrative tools: Interactive Multimedia Instruction for the technicians in the Fleet in the form of Interactive Courseware (ICW) with Computer Managed Instruction and Computer Aided Instruction for the schoolhouse.

Included in the AMTCS development effort is the Aviation Maintenance Training Continuum System - Software Module, which provides testing [Test and Evaluation], recording [Electronic Certification Qualification Records], and a Feedback system. The core functionality of these AMTCS tools are based and designed around the actual maintenance-related tasks the technicians perform, and the tasks are stored and maintained in a Master Task List data bank. These tools are procured and fielded with appropriate Commercial-Off-The-Shelf hardware and software, i.e., Fleet Training Devices - Laptops, PCs, Electronic Classrooms, Learning Resource Centers, operating software, and network software and hardware.

Upon receipt of direction from OPNAV (N789H), AMTCS concepts are to be implemented and the new tools integrated into the daily training environment of all participating

aviation activities and supporting elements. AMTCS will serve as the standard training system for aviation maintenance training within the Navy and Marine Corps, and is planned to supersede the existing MTIP and Maintenance Training Management and Evaluation Program.

ALMDS training will encompass the requirements of AMTCS.

2. Personnel Qualification Standards. Currently no formal Personnel Qualification Standards are planned for the ALMDS.

3. Other Onboard or In-Service Training Packages. On-Board training in the form of portable CBT/ICW will be developed to provide operators a mission skill development capability and a means to maintain proficiency operating the ALMDS. This is an invaluable tool for those aircrews who may experience extended periods between mission flights. Similar proficiency support training will also be developed for maintenance and tactics (MCM Planning/Post Mission Analysis/MCM Evaluation) personnel. On-the-Job Training will be available at the Fleet level.

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers.

CONTRACT NUMBER	MANUFACTURER	ADDRESS
N61331-00-C-0022	Northrop Grumman Corporation	2000 West NASA BLVD, P.O. Box 9650 Melbourne, FL 32902-9650

2. Program Documentation. A Draft Integrated Support Plan, ALMDS-ISE-PLAN-003 and Draft Maintenance Support Plan, ALMDS-ISE-PLAN-001 both dated 29 December 2000 are currently available.

3. Technical Data Plan. The ALMDS technical publications will be produced, distributed, and supported in an Interactive Electronic Technical Manual (IETM) format, including software and hardware support. The ALMDS publications will support operation, training and maintenance of the system. The IETMs will be developed in accordance with the ALMDS Technical Manual Contract Requirements.

4. Test Sets, Tools, and Test Equipment. Requirements for special test sets, tools, equipment, and general purpose test equipment will be identified during the System Development and Demonstration phase. The required equipment will be available to support Initial Operational Capability (IOC).

5. Repair Parts. Requirements for repair parts will be identified during the System Development and Demonstration phase. Initially provisioned repair parts will be available to support IOC.

6. Human Systems Integration. The Human Systems Integration Plan establishes the basis for effective integration of human factors engineering, manpower, personnel, training, health hazards, and safety considerations into the ALMDS acquisition as outlined in the Department of Defense Instruction 5000.2. The plan is currently outlined in the ALMDS Human Engineering Program Plan dated 18 September 2000. This plan will be updated as required.

K. SCHEDULES.

1. Installation and Delivery Schedule. The table below indicates the number of planned system deliveries per FY. Individual squadron deliveries have not been identified.

DELIVERY SCHEDULE			
FY05	**FY06**	**FY07**	**FY08**
04	04	05	11

2. Ready For Operational Use Schedule. The ALMDS is Ready For Operational Use upon delivery to the squadron.

3. Time Required to Install at Operational Sites. The ALMDS system is delivered ready for use, but is not permanently installed in the aircraft. The ALMDS is loaded as a modularized, removable component.

4. Foreign Military Sales and Other Source Delivery Schedule. NA.

5. Training Device and Technical Training Equipment Delivery Schedule. Although detailed information on Training Devices (TD) and Technical Training Equipment (TTE) is currently under development it is expected the following TDs and TTE will be required.

(a) Operator:

DEVICE	**DATE REQUIRED**
Common Console	June FY05
ALMDS Pod (Dummy)	June FY05
CSTRS	June FY05
Stream/Recovery Trainer	June FY05

(b) Maintenance:

DEVICE	DATE REQUIRED
Common Console	June FY05
ALMDS Pod (Task Trainer)	June FY05
CSTRS	June FY05
Aircraft Configuration Trainer	June FY05

(c) Tactics:

DEVICE	DATE REQUIRED
MEDAL	June FY05
Navy H60 Mission Planning Station	June FY05
Post Mission Analysis Station	June FY05

L. GOVERNMENT-FURNISHED EQUIPMENT AND CONTRACTOR-FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA.

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Concept of Operations for H-60 Anti-Mine Warfare Operations in The Battle Group	NA	PMS210	Oct 1999
Master Acquisition Planning Program ALMDS	NA	PMS210	Draft Nov 1999
Single Acquisition Management Plan	SAMP-0001-99-PMS210	PMS210	Draft Jan 2000
Integrated Support Plan	ALMDS-ISE-PLAN-003	PMS210	Draft Dec 2000
Maintenance Support Plan	ALMDS-ISE-PLAN-001	PMS210	Draft Dec 2000
Assigned Airborne Mine Countermeasures Concept of Employment	NA	PMS210	Nov 2001
H-60 Armed Helicopter Program NTSP	N88-NTSP-A-50-9850/A	PMA299	Approved Mar 2002

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Operational Requirements Document for an AMCM Multi-Mission HC Helicopter	Annex B (Revision 1)	CNO N752E	Approved Aug 2002
MH-60S NTSP	N88-NTSP-A-50-9902A/A	PMA299	Approved Jan 2003
AN/AQS-20A Initial NTSP	N75-NTSP-P-30-0305/I	PMS210	Initial Sep 2003

APPENDIX A - POINTS OF CONTACT

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Appendix B to the ALMDS NTSP identifies the proposed establishment of new training courses and revisions to existing tracks. Due to this being new development training, the extent of impact to existing and planned training tracks is unknown at this time. RFT dates below have been estimated based on current program information.

Note: Dual site training for the AMCM systems maintenance technicians, as identified in this NTSP, is anticipated. Currently, training site throughput has not been determined. It is expected, the MER, once complete, will provide the information needed for developing the throughput numbers used to determine if dual site training is required.

1. E-2C-3100, MH-60S Fleet Replacement Pilot Category I Pipeline. The course identified below is currently proposed in the AN/AQS-20A Initial NTSP. Proposed revision:

(a) Revise **D/E-2C-XXX1**, MH-60S Pilot Airborne Mine Countermeasures Systems Familiarization and Operational Flight Trainer/Weapons Tactical Trainer. Add ALMDS training information. Impact to course length is TBD. Course currently proposed in the AN/AQS-20A Initial NTSP with an anticipated establishment at the FRS, HC-3 NAS North Island and HC-2 NS Norfolk. HC-3 RFT date is June 2005. HC-2 RFT date is TBD.

(b) Change to Category I track lengths is TBD.

2. E-2C-3102, MH-60S Fleet Replacement Pilot Category II Pipeline. The course identified below is currently proposed in the AN/AQS-20A Initial NTSP. Proposed revision:

(a) Revise **D/E-2C-XXX1**, MH-60S Pilot Airborne Mine Countermeasures Systems Familiarization and Operational Flight Trainer/Weapons Tactical Trainer. Add ALMDS training information. Impact to course length is TBD. Course currently proposed in the AN/AQS-20A Initial NTSP with an anticipated establishment at the FRS, HC-3 NAS North Island and HC-2 NS Norfolk. HC-3 RFT date is June 2005. HC-2 RFT date is TBD.

(b) Change to Category II track length is TBD.

3. E-050-3100, MH-60S Fleet Replacement Aircrew Category I Pipeline. Proposed revision:

(a) Add **C-050-XXX1**, Airborne Laser Mine Detection System Operator. Course length is TBD. Establish this course at the FRS, HC-3 NAS North Island and HC-2 NS Norfolk. HC-3 RFT date is June 2005. HC-2 RFT date is TBD.

(b) Change to Category I track length is TBD.

4. E-050-3102, MH-60S Fleet Replacement Aircrewman Category II Pipeline. Proposed revision:

(a) Add **C-050-XXX1**, Airborne Laser Mine Detection System Operator. Course length is TBD. Establish this course at the FRS, HC-3 NAS North Island and HC-2 NS Norfolk. HC-3 RFT date is June 2005. HC-2 RFT date is TBD.

(b) Change to Category II track length is TBD.

5. D/E-102-XXX1, MH-60S AMCM Systems Organizational and Intermediate Maintenance. This track is currently proposed in the AN/AQS-20A Initial NTSP. Proposed revision:

(a) Add **C-102-XXX2**, Airborne Laser Mine Detection System Electronics Systems Organizational Level Maintenance. Course length is TBD. Establish this course at MTU-1022, NAS North Island and MTU-1044 NS Norfolk. MTU-1022 RFT date is June 2005. MTU-1044 RFT date is TBD.

(b) Change to track length is TBD.

6. C-102-XXX3, Airborne Mine Countermeasures MCM Planning, Post Mission Analysis, MCM Evaluation Course. This course is currently proposed in the AN/AQS-20A Initial NTSP. Training for squadron tactics personnel will be resident in a Stand-Alone course. A new OJT awardable NEC code 03XX, AMCM Operations Specialist will be established. This NEC will be awarded after successful completion of the Stand-Alone course and approximately six months of OJT at the squadron. No training track required. Proposed revision:

(a) Revise, **C-102-XXX3,** Airborne Mine Countermeasures MCM Planning, Post Mission Analysis, MCM Evaluation. Add ALMDS training information. Change to course length is TBD. Training location TBD. RFT date is June 2005.

7. D/E-646-0840, H-60 Armament and Related Systems Organizational Maintenance Track. The course below is currently proposed in the AN/AQS-20A Initial NTSP. Proposed revision:

(a) Revise **C-646-XXX4** MH-60S AMCM Weapon Systems Mission Configuration. Add ALMDS training information. Change to course length is TBD. Course currently proposed in the AN/AQS-20A Initial NTSP with an anticipated establishment at MTU-1022, NAS North Island, and MTU-1044, NS Norfolk. MTU-1022 RFT date is June 2005. MTU-1044 RFT date is TBD.

(b) Change to track length is TBD.